

Design and Test Results Of The Low Energy Demonstration Accelerator (LEDA) RF Systems*, J. BRADLEY III, K. CUMMINGS, M. LYNCH, A. REGAN, D. REES, T. ROHLEV, W. ROYBAL, Y. WANG, LANL - The Low Energy Demonstration Accelerator (LEDA) being constructed at Los Alamos National Laboratory will serve as the prototype for the low energy section of the Acceleration Production of Tritium (APT) accelerator. The APT accelerator requires over 200 RF systems each with a continuous wave output power of 1 MW. The reliability and availability of these RF systems is critical to the successful operation of the APT plant and prototypes of these systems are being developed and demonstrated on LEDA. The RF system design for LEDA includes three, 1.2 MW, 350 MHz, continuous wave, RF systems driving a radio frequency quadrupole (RFQ) and one, 1.0 MW, continuous wave, 700 MHz, RF system driving a coupled-cavity drift tube linac (CCDTL). This paper will present the design and test results for these RF systems including the klystrons, cathode power supply, circulators, RF vacuum windows, accelerator field and resonance control system, and RF transmission components. The three RF systems driving the RFQ use the accelerating structure as a power combiner and this places some unique requirements on the RF systems. These requirements and corresponding operational implications will be discussed.

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